

WHAT IS CLAIMED IS:

1. An imaging member possessing a collection efficiency proportional to an electric field, and which member is comprised of a single layer containing a photogenerating component and a mixture of a charge transport component and a polymeric binder, and wherein the charge transport component is comprised of a mixture of hole transport and electron transport components.

2. A photoconductive imaging member comprised of a supporting substrate, and thereover a single layer comprised of a mixture of a photogenerator component, a hole transport component, an electron transport component, and a polymer binder, and optionally wherein the photogenerating component is a metal free phthalocyanine, and wherein the weight ratio of photogenerating component to binder, hole transport and electron transport components is from about 1:99 to about 2:98, and the weight ratio of the binder component to the hole and electron transport component is from about 40:60 to about 60:40, and the weight ratio of the hole transport component to the electron transport component is from about 70:30 to about 50:50.

3. An imaging member in accordance with **claim 1** wherein the photogenerating component is the x polymorph metal free phthalocyanine prepared by milling the pigment and said polymeric binder at a weight ratio of about 40:60 to about 50:50 for 10 hours, and optionally wherein the pigment surface has substantially no traceable contaminates at about above 0.1 percent in weight versus the pigment weight, and the particle size of said pigment is from about 100 to about 250 nanometers as measured by light scattering.

4. An imaging member in accordance with **claim 1** wherein the weight ratio of the photogenerating component and charge transport component is from about 1:1 to about 1:100.

5. An imaging member in accordance with **claim 1** wherein the weight ratio of the photogenerating component and hole transport component is from about 1:0.5 to about 1:50.

6. An imaging member in accordance with **claim 1** wherein the weight ratio of the photogenerating component and the electron transport component is from about 1:0.5 to about 1:50.

7. An imaging member in accordance with **claim 1** wherein the weight ratio of the hole transport component to the electron transport component is from about 1:1 to 3:1.

8. An imaging member in accordance with **claim 1** wherein the collection efficiency is proportional to an electric field at light with a wavelength of from about 350 to about 950 nanometers.

9. An imaging member in accordance with **claim 1** wherein the weight ratio of the photogenerating component to charge transport component is from about 2:100 to about 5:100, and the collection efficiency is proportional to said electric field of from about 1 to about 50 V/ μ m of the imaging member at light of a wavelength of from about 780 nanometers.

10. An imaging member in accordance with **claim 1** wherein said collection efficiency is proportional to the electric field at a xerographic process speed of about 40 mm/s to about 400 mm/s.

11. An imaging member in accordance with **claim 1** wherein said collection efficiency is proportional to said electric field at a dark decay rate of about 1 V/s to about 2,000 V/s.

12. An imaging member in accordance with **claim 1** wherein said single layer is of a thickness of from about 5 to about 60 microns wherein the weight ratio of photogenerating component/binder/charge transport/electron transport component is from about 1:46:27:16 to about 1:50:40:17.

13. An imaging member in accordance with **claim 1** wherein the amounts for each of said components in said single layer is from about 0.05 weight percent to about 30 weight percent for the photogenerating component, from about 10 weight percent to about 75 weight percent for the charge transport component, and from about 10 weight percent to about 75 weight percent for the electron transport component, and wherein the total of said components is about 100 percent, and wherein said layer components are dispersed in from about 10 weight percent to about 75 weight percent of said polymer binder, and wherein the weight ratio of photogenerating component/binder/charge transport/electron transport component is about 1.4:48.6:32:18.

14. An imaging member in accordance with **claim 1** wherein the amounts for each of said components in the single layer mixture is from about 0.5 weight percent to about 5 weight percent for the photogenerating component; from about 30 weight percent to about 50 weight percent for the charge transport component; and from about 5 weight percent to about 30 weight percent for the electron transport component; and which components are contained in from about 30 weight percent to about 50 weight percent of a polymer binder.

15. An imaging member in accordance with **claim 1** wherein the thickness of said layer is from about 10 to about 35 microns.

16. An imaging member in accordance with **claim 1** wherein said single layer components are dispersed in said polymer binder, and wherein said charge transport is comprised of hole transport molecules.

17. An imaging member in accordance with **claim 16** wherein said binder is present in an amount of from about 50 to about 90 percent by weight, and wherein the total of all components of said photogenerating component, said charge transport component, said binder, and said electron transport component is about 100 percent.

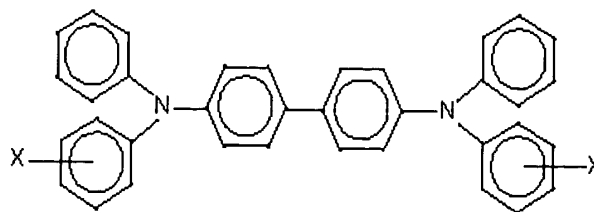
18. An imaging member in accordance with **claim 1** wherein said photogenerating component absorbs light of a wavelength of from about 370 to about 950 nanometers.

19. An imaging member in accordance with **claim 1** further containing a supporting substrate comprised of a conductive metal.

20. An imaging member in accordance with **claim 19** wherein the substrate is aluminum, aluminized polyethylene terephthalate or titanized polyethylene terephthalate.

21. An imaging member in accordance with **claim 19** wherein the binder is selected from the group consisting of polyesters, polyvinyl butyrals, polycarbonates, polystyrene-b-polyvinyl pyridine, and polyvinyl formulas.

22. An imaging member in accordance with **claim 1** wherein said charge transport component or components is comprised of molecules of the formula



wherein X is selected from the group consisting of alkyl, alkoxy and halogen.

23. An imaging member in accordance with **claim 22** wherein alkyl contains from about 1 to about 10 carbon atoms, and wherein the charge transport is an aryl amine encompassed by said formula and which amine is optionally dispersed in a resinous binder.

24. An imaging member in accordance with **claim 22** wherein alkyl is methyl, and wherein halogen is chloride.

25. An imaging member in accordance with **claim 22** wherein said charge transport is comprised of molecules of N,N'-diphenyl-N,N-bis(3-methylphenyl)-1,1'-biphenyl-4,4'-diamine.

26. An imaging member in accordance with **claim 1** wherein said electron transport component is (4-n-butoxycarbonyl-9-fluorenylidene) malononitrile, 2-methylthioethyl 9-dicyanomethylenefluorene-4-carboxylate, 2-(3-thienyl)ethyl 9-dicyanomethylenefluorene-4-carboxylate, 2-phenylthioethyl 9-dicyanomethylene fluorene-4-carboxylate, 11,11,12,12-tetracyano anthraquinodimethane or 1,3-dimethyl-10-(dicyanomethylene)-anthrone.

27. An imaging member in accordance with **claim 1** wherein said electron transport component is (4-n-butoxycarbonyl-9-fluorenylidene) malononitrile.

28. An imaging member in accordance with **claim 22** wherein said electron transport component is (4-n-butoxycarbonyl-9-fluorenylidene)malononitrile, 2-methylthioethyl 9-dicyanomethylenefluorene-4-carboxylate, 2-(3-thienyl)ethyl 9-dicyanomethylenefluorene-4-carboxylate, 2-phenylthioethyl 9-dicyanomethylene fluorene-4-carboxylate, 11,11,12,12-tetracyano anthraquinodimethane or 1,3-dimethyl-10-(dicyanomethylene)-anthrone.

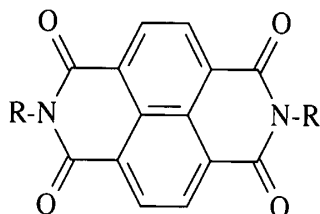
29. An imaging member in accordance with **claim 1** further including a second photogenerating component of a titanyl phthalocyanine, a metal phthalocyanine other than titanyl phthalocyanine, a perylene, trigonal selenium, or mixtures thereof.

30. An imaging member in accordance with **claim 11** wherein said electron transport is (4-n-butoxy carbonyl-9-fluorenylidene)malononitrile, and the charge transport is a hole transport of N,N'-diphenyl-N,N-bis(3-methyl phenyl)-1,1'-biphenyl-4,4''-diamine molecules.

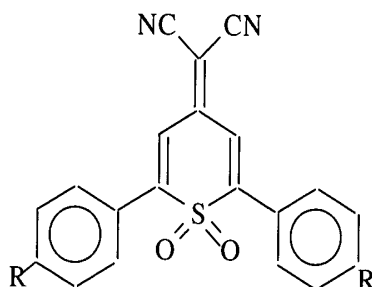
31. A photoconductive imaging member in accordance with **claim 1** and comprised of a first layer mixture containing a photogenerating component, hole transport molecules and an electron transport component, and thereover and in contact with said first layer a second layer comprised of hole transport molecules dispersed in a resin binder.

32. An imaging member in accordance with **claim 31** wherein said electron transport is (4-n-butoxycarbonyl-9-fluorenylidene)malononitrile, 2-methylthioethyl 9-dicyanomethylenefluorene-4-carboxylate, and optionally, wherein said imaging member further contains an adhesive layer and a hole blocking layer.

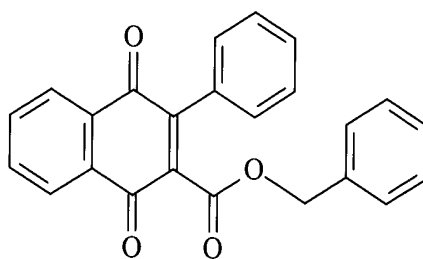
33. An imaging member in accordance with **claim 1** wherein said photogenerating component is optionally comprised of a metal free phthalocyanine photogenerating pigment dispersed in a matrix comprising an arylamine hole transport, and wherein said electron transport selected from the group consisting of N,N'-bis(1,2-dimethylpropyl)-1,4,5,8-naphthalenetetracarboxylic diimide



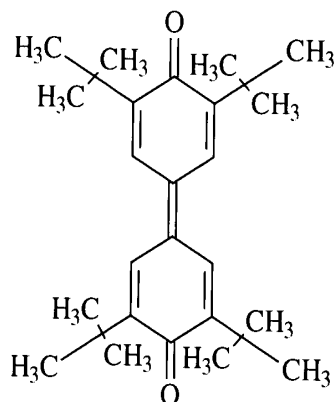
1,1'-dioxo-2-(4-methylphenyl)-6-phenyl-4-(dicyanomethylidene) thiopyran



wherein R is independently selected from the group consisting of hydrogen, alkyl with 1 to about 4 carbon atoms, alkoxy with 1 to about 4 carbon atoms and halogen, and a quinone selected from the group consisting of carboxybenzyl naphthaquinone

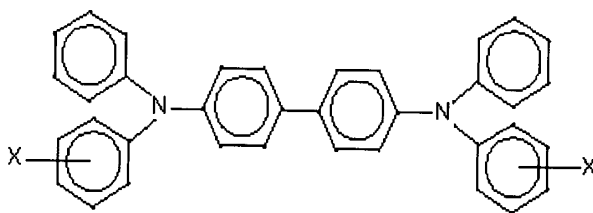


and tetra(t-butyl) diphenolquinone



and mixtures thereof.

34. An imaging member in accordance with **claim 1** wherein said binder is selected from the group consisting of polycarbonates, polystyrene-b-polyvinyl pyridine, N,N'-diphenyl-N,N'-bis(alkylphenyl)-1,1'-biphenyl-4,4'-diamine; TTA, tri-p-tolylamine; AE-18, N,N'-bis-(3,4,-dimethylphenyl)-4-biphenyl amine; AB-16, N,N'-bis-(4-methylphenyl)-N,N''-bis(4-ethylphenyl)-1,1'-3,3'-dimethylbiphenyl)-4,4'-diamine; and PHN, phenanthrene diamine; and wherein the charge transport comprises aryl amine molecules of the formula



wherein X is selected from the group consisting of alkyl and halogen.

35. A member in accordance with **claim 2** wherein the weight ratio of photogenerating component/binder/charge transport/electron transport component is about 1:4:48.6:32:18, about 1.2/48.8/32/18, or about 1.6/48.4/32/18.

36. A method of imaging which comprises generating an electrostatic latent image on the imaging member of **claim 11**, developing the latent image, and transferring the developed electrostatic image to a suitable substrate.

37. A photoconductive imaging member comprised of a supporting substrate, and thereover a single layer comprised of a mixture of a photogenerator component, a charge transport component, an electron transport component, and a polymer binder, and wherein the weight ratio of photogenerating component/binder/charge transport/electron transport component is from about 1:45:25:15 to about 1:55:35:18.

38. A photoconductive imaging member in accordance with **claim 37** wherein said photogenerating component is a metal free phthalocyanine.